# *ANNUAL REPORT*

OF THE DIRECTOR

OF THE

# MUSEUM OF COMPARATIVE ZOOLOGY

AT HARVARD COLLEGE

1957-1958

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PUBLICATIONS ISSUED BY OR IN CONNECTION
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BULLETIN (octavo) 1863 — The current volume is Vol. 122.

BREVIORA (octavo) 1952 — No. 124 is current.

MEMOIRS (quarto) 1864–1938 — Publication was terminated with Vol. 55.

JOHNSONIA (quarto) 1941 — A publication of the Department of Mollusks. Vol. 3, no. 39 is current.

OCCASIONAL PAPERS OF THE DEPARTMENT OF MOLLUSKS (octavo) 1945 — Vol. 2, no. 25 is current.

PROCEEDINGS OF THE NEW ENGLAND ZOOLOGICAL CLUB (octavo) 1899–1948 — Published in connection with the Museum. Publication terminated with Vol. 24.

The continuing publications are issued at irregular intervals in numbers which may be purchased separately. Prices and lists may be obtained on application to the Director of the Museum of Comparative Zoology, Cambridge 38, Massachusetts.

Of the Peters "Check List of Birds of the World," volumes 1-3 are out of print; volumes 4 and 6 may be obtained from the Harvard University Press; volumes 5 and 7 are sold by the Museum, and future volumes will be published under Museum auspices.

# MUSEUM OF COMPARATIVE ZOOLOGY

During 1957-1958 the Museum has continued steadily its customary major endeavors in research, accompanying instruction, and curatorial routine. This year, however, has been marked by some unusual activities, such as expedition work in Asia, Australia and South America. Especially worthy of mention was a substantial grant from the National Science Foundation for the improvement of our collections and other facilities.

## STAFF

As usual, staff members were invited to lecture, take part in symposia, serve on scientific panels, etc. in cases too numerous to warrant detailed listing. The Woods Hole Oceanographic Institution has established a Chair of Oceanography named in honor of Dr. Henry B. Bigelow, who rendered invaluable service in the establishment and development of that institution. Dr. Mayr was made vice-president, representing the numerous Americans in attendance, of the International Zoological Congress held in London this summer and in addition to continuing as president of the American Ornithological Union, has been elected president of the Nuttall Ornithological Club and president of the XIII International Ornithological Congress, to be held in 1962. Dr. Whittington was elected secretary of the Paleontological Society.

As usual staff members presented a number of formal course offerings in the departments of biology and geology under the Faculty of Arts and Sciences, and supervised the research of a very considerable number of graduate students.

As noted last year, the former vertebrate seminar has been expanded into a weekly seminar running throughout the college year on zoological and natural history problems in general. Conducted by Drs. Williams, Levi and Turner, this has proved increasingly popular with staff and students.

## RESEARCH

Staff and student research continues at a good pace, aided in great measure by grants and contracts from a variety of sources. In the mammal department, Curator Lawrence and Dr. Burnett have been in great measure occupied with taxonomic studies. This year, Dr. Lyman's work on hibernation has been concerned with cell growth and circulatory changes which take place during the hibernating cycle. Mr. Schevill's cetacean studies this year have been especially concerned with environmental adaptation, and with acoustics. Dr. Mayr has continued his researches on problems in evolution, and in various aspects of ornithology. Curator Greenway has spent much time in editing volume 9 of the "Check-list of Birds of the World."

In herpetology, Dr. Williams has completed a valuable review of the development of tetrapod vertebrae, "rediscovered" an Australian turtle genus and studied cervical ribs in turtles. In work on *Anolis* lizards, he has collaborated with Dr. Underwood of Jamaica and Mr. Shreve on the Lesser Antillean forms and, with Dr. Vanzolini, he has made further studies of South American chelid turtles. Mr. Shreve has described a new Bolivian frog, worked on members of the *Sphaerodactylus* group in Hispaniola and the Caicos Islands and, with Dr. Carl Gans, published a discussion of a rare Central American snake.

Dr. Bigelow, having completed, with Mr. Schroeder, the first two volumes of the important "Fishes of the Western North Atlantic," has undertaken the editorship of volume 3. Dr. Bigelow and Mr. Schroeder have completed an account of the smelts and capelin which will form a section of this volume. In progress is an account of new species in a fine collection of skates, rays and small sharks, received from the U. S. Fish and Wildlife Service, which were taken in 100-500 fathoms over an area from the Caribbean to the offing of the Amazon. For a time abandoning the fishes, Mr. Schroeder has completed a paper on lobster and red crabs living in deep water along the outer Atlantic Shelf and upper slope.

In entomology, Dr. Brown completed a large section of a reclassification of the ants of the world, as well as finishing parts of his revision of the ant tribe Dacetine. He has, further, continued studies on evolutionary theory, including the interesting thesis of "centrifugal evolution," and published a speculative paper on human evolution. With Dr. Wilson he made studies on the fire ant and other ants in the southeastern United States. The latter continued his studies of Pacific ants and of ant faunas and ant behavior generally. Dr. Chapin's studies of Coccinellidae continue, as do Professor Forbes' on Lepidoptera. Dr. Levi revised the black widow spiders as well as making further arachnid studies under a National Institute of Health grant. Dr. Carpenter has described a new Inocelliid from Mexico, brought a paper on Micronesian Hemerobiidae close to completion, and worked both on Mexican Raphiodea and on preparation of copy on fossil insects of the world for the "Treatise on Invertebrate Paleontology." Dr. Chickering spent last summer with us studying neotropical spiders.

Miss Deichmann has continued work on Antarctic holothurians, has worked with Dr. Frederick M. Bayer on West Indian gorgonians and, with Dr. James M. Moulton, on the Palinuridae, especially those of American waters, in connection with the latter's studies of underwater sound.

In the mollusk department, studies have continued on western Atlantic marine mollusks, with completion this year of the families Cymatiidae, Phasianellidae and Pinnidae; the introduction and index for the third volume of "Johnsonia" will be published during the coming year. The genus *Hemitrochus* in Puerto Rico has been described in an "Occasional

Paper." Dr. Turner's work on the Teredinidae continues, as does Dr. Clench's on the land shells of the Bahamas, and the latter has finished studies of the Fruticicolidae and Camaenidae of Hispaniola.

From her various long-term projects in paleoneurology, Dr. Edinger has chosen this past year to concentrate on studies of a specialized Paleocene mammal brain and the parietal eye in fossil reptiles. I have made further studies of Carboniferous amphibians and have revised my book "Man and the Vertebrates" so radically that it will appear this coming year under a new title. Professor Patterson has been engaged in a varied series of studies. A monograph of the earliest South American rodents, written in collaboration with Dr. Albert E. Wood, has been finished, and a discussion of the spectacular phororhacoid fossil birds of South America, written with Senor Jorge L. Kraglievich, is in press. A study of the South American Oligocene Archeohyracidae, showing them to be referable to the hegetotheres, is near completion, and a new genus of barylambdid pantodonts was described in collaboration with Mr. Elwyn L. Simons. Examination of the supposed insectivore *Necrolestes* from South America shows that it is a marsupial; study of a series of African mammals of obscure relationships — *Palaeothentoides, Metolbodotes* and *Myohyrax* — indicates their relationship to the elephant shrews.

Arrangements have been made with the Geological Society of America for the publication of the bibliography of non-North American paleontology to the year 1927 and preparation of the typescript for photolithographic production is actively under way. About 70,000 works are included. Together with the companion North American volumes by the late Dr. Oliver P. Hay and the later volumes by the University of California group, the series of volumes will provide a practically complete bibliography of this field of science.

Dr. Whittington's continuing work on trilobites includes systematic studies on silicified Middle Ordovician forms from

Virginia and on Cambrian and Ordovician trilobites for both Europe and North America. Dr. Kummel has spent much of the year in the preparation of a general text on earth history. The year has seen the publication of the Geological Society of America's final report on Triassic stratigraphy, in the preparation of which Dr. Kummel played a substantial part.

## EXPEDITIONS AND TRAVEL

The past year has seen an unusual amount of foreign travel and expedition work. At the year's end Dr. Darlington returned from a visit of more than a year and a half to Australia. He was accompanied by his wife and son on the trip, supported by a Guggenheim Fellowship, and undertaken for the collection and study of carabid beetles. The period from December 1956 to April 1957 was spent in Tasmania, with collecting concentrated in the wet forests of "antarctic beech." The next four months were occupied mainly by a study of Sloane's types of carabids in the Commonwealth Scientific and Industrial Research Organization at Canberra. Later, some time was spent at the South Australian Museum and the Victorian National Museum, but most of the ten months from September 1957 to his return this June was spent in the field, travelling and camping in a small canvas-covered automobile. During this time collections were made in a great variety of localities in eastern Australia, from South Australia and Victoria northward through New South Wales to Queensland and Cape York. About 20,000 beetles were collected, which will, amongst other things, form the basis of a detailed study of the Antarctic Carabidae of Tasmania and the complex transitions of carabid faunas from the cool south-temperate beech forests to the rain forests of northern Queensland.

In August 1957 Dr. Paynter, with an undergraduate assistant, Mr. Melvin Bristol, left to undertake a joint Harvard-Yale expedition to India with the collection of birds as its major objective. Much of the year was spent in Nepal; following this, East Pakistan was visited, and as this report is written, collecting was being done in the Darjeeling region. Preliminary reports from Dr. Paynter suggest that despite various difficulties and vicissitudes the expedition has been a very successful one; up to June 1958, about 3100 birds had been collected.

Professor Patterson, Messrs. Lewis and Jensen, my wife and I spent the spring collecting fossil vertebrates in the western Argentine. The trip was made in cooperation with the National Museum of Buenos Aires, and was supported in part by grants from the National Science Foundation and from LIFE magazine. A small but interesting suite of Tertiary mammals was obtained. Much greater success was achieved, however, in collecting Triassic vertebrates. From the Mendoza region were obtained fine series of fishes and brachyopid amphibians. The high spot of the trip, however, was the discovery in the desert valley of Ischigualasto, some 300 miles to the northeast, of a remarkable deposit of fossil reptiles, especially rich in cynodonts, from which large numbers of excellent specimens were obtained. This valley is without question one of the most remarkable collecting areas for fossil vertebrates ever discovered. The total shipment of fossils sent to Cambridge amounted to 11 tons. Preparation of the materials (of which a fraction, by agreement, are to be returned to Buenos Aires) will probably require about 8 man-years of work.

We cannot express too warmly our thanks for the courtesies and help extended to us on every hand. In Buenos Aires Drs. Mario and Genevieve Dawson Teruggi gave unsparingly of their time in aiding the expedition to traverse the bureaucratic mazes encountered in entering and leaving the Argentine. Numerous geologists, such as Drs. Pablo Groeber, Dr. Martinez Cal and Dr. Pedro Stepanicic and other staff members of the Yacimientos Petroliferos Fiscales and the Atomic Energy Commission gave us helpful information, and the last group aided with water and fuel supplied during our stay in

Ischigualasto. In the Mendoza region, Dr. and Mrs. Jose Luis Minoprio, Dr. Manuel Tellechea and Dr. Carlos Rusconi, Director of the Natural History Museum of Mendoza, aided us greatly.

During the summer of 1957 Dr. Whittington did field work in the Bala area of North Wales under a Guggenheim grant; Dr. Kummel worked in Libya, where he obtained a large and interesting series of Eocene invertebrate fossils, and in the upper Amazon region. Dr. Burnett again made a fine collection of bats in Mexico. Dr. Levi spent the season in the Rocky Mountain region. Following a symposium on marine borers at Friday Harbor, Dr. Turner spent September 1957 in collecting and visiting museums and laboratories on the Pacific coast. Among our associates, Mr. Foster made a trip to the Virgin Islands and Lesser Antilles during January and February for land and marine mollusks; Dr. Chickering, with a Guggenheim Fellowship, spent the winter collecting spiders in Jamaica and the Canal Zone, and later studied arachnids in the British Museum; Dr. Fairchild has continued his work on biting flies. Mr. Schevill, under the auspices of the Woods Hole Oceanographic Institution, did further field work on cetaceans, chiefly in the nearer North Atlantic but also in the Pacific off southern California. Dr. Rodolfo Ruibal collected reptiles and amphibians in Camaguey Province, Cuba, during the summer of 1957 on a trip sponsored by the Museum and financed by the American Philosophical Society.

This past spring Dr. Carpenter collected Pliocene insects at Canyon, Texas, and Dr. Wilson spent the month of June studying the distribution and ecology of ants in the Florida keys. Dr. Whittington has undertaken a 1958 field season in the Cambrian and Ordovician of Newfoundland under a National Science Foundation grant.

This spring saw a considerable migration of staff members to Europe, in great measure for Museum studies there. Drs. Chickering, Deichmann, Levi, Mayr, Schevill, and Turner, Miss Mackenzie and the writer attended the International Zoological Congress in London and most of the group also suffered through the colloquium on nomenclature preceding it. During the spring period covered by this report Dr. Levi studied arachnid types in a number of European Museums, under a grant from the National Science Foundation; Miss Deichmann studied holothurians in museums in Scandinavia and Holland; Dr. Mayr attended an International Orinthological Congress in Helsinki.

## COLLECTIONS

As has been noted in various reports during the past dozen years, the Museum's financial position has caused us to get far behind in the work of maintaining our collections and putting them in shape for efficient use as research tools and has, further, resulted in our laboratory equipment and other facilities falling far below a suitable level. Application was made last autumn to the National Science Foundation for aid in bringing our research facilities into good condition. Following a visit by an N.S.F. committee to investigate the situation, we were this spring granted $300,000 to be expended over a five-year period for such purposes. Much of it will be spent on scientific and technical assistance in bringing our collections into good shape; other fractions will be used for needed microscopes and other types of equipment, and badly needed storage cases.

We are, of course, deeply grateful for the opportunity afforded by this generous grant to place all of the Museum's departments in a condition where their research work can be done in much better fashion. Much larger sums of money are, of course, given annually by the government to institutions working in fields applicable to problems of defense and health; the sum granted is, I believe, among the largest ever given for work in "pure" science, and gives welcome testimony to the high regard in which the Museum's work is held nationally — and internationally.

It is to be hoped that this grant will be but the first of a series of grants by the government in aid of institutions such as ours, in line with the growing appreciation of the fact that applied science and technology cannot flourish unless underlying basic fields are properly nourished. Support of this sort is badly needed by private institutions, whose work has been crippled by inflation, and most especially by institutions such as ours, which cannot, in contrast to teaching departments, partially recoup their losses through increased tuition charges or solicitation from alumni.

In the Department of Birds, there were added to the collections skins and skeletons from Guatemala received from Mr. Frank Smithe, and a small but interesting collection purchased from Father Verheijen of Ruteng, Flores. More than 3,400 amphibians and reptiles were identified and catalogued in the herpetological collections. Included were some collections made in earlier years, such as one from Riu Kiu made by Messrs. Young, Parsons, Gillaspy and others during the Second World War, and specimens from the Middle East collected by Dr. Henry Field in 1950. Exchanges with other institutions added 85 new species or subspecies.

In the Department of Insects much work continued to be done on arranging and adding to the collections. Beside materials gathered by staff members, noteworthy accessions include many Australian Carabidae obtained by exchange from the South Australian Museum, and important collections of ants from Borneo (P. W. Bryant), and Nepal (E. I. Coher). A collection of identified earthworms was presented by our good friend Dr. Gordon E. Gates, and Dr. Juan Rivero of the Biological Institute, Mayaguez, gave us a series of Puerto Rican gorgonians. In the Department of Mollusks a total of 3,684 lots were received during the past year, including many species new to the museum; much material was received through exchanges with other institutions as well as from individuals. Mr. G. A. Seamans of the Virgin Islands continues to send fine land materials from that area, and a number of mollusks have been received from the Zoological Museum in Amsterdam.

Some further progress in cataloging paleontological materials has been made in both vertebrate and invertebrate areas. Cambrian and Ordovician trilobites from Norway, Germany and Britain were added to the collections. We are indebted to Dr. Sumiio Sakagami for a splendid suite of Triassic invertebrates from Japan. Close relations have been established with New Zealand geologists and some five large collections of new Triassic material have been sent over for identification.

## LIBRARY

Two very welcome gifts during the past year have greatly aided the library, hard-pressed for funds, to maintain and improve its status. A most urgent problem for years has been an increasing backlog of journal volumes unbound and hence subject to deterioration. Of the grant from the National Science Foundation $30,000 has been allocated to the library for binding; this should notably reduce this source of concern. We have in past years noted that our holdings in geology were (in contrast with those in zoology) lamentably weak, and this field was one of the few areas in which Harvard was given a "B" rather than an "A" rating in Mr. Metcalf's final report as university librarian. Last winter we received, from an anonymous donor, an unexpected and very generous gift of $25,000 for the improvement of our geological holdings. This will be spent in searching out and, as far as possible, filling, the more important gaps in our collections — most especially evident in the field of foreign geological surveys.

Progress has been made in the incorporation in our collections of books and journals in appropriate fields of biology and geology transferred from Widener Library. Some 863 new works were thus added to our collections. During the year there was a modest net increase in volumes and pamphlets to give a total of 235,889, and an increase in serial titles currently received to 2,420. Eighty-nine new titles have been added to our exchange, which now number 1634.

During the summer of 1957 Miss Mackenzie aided the library staff of the British Museum (Natural History) in the preparation, for the 1958 International Zoological Congress, of an exhibit showing the development of illustration of zoological materials from 1800 to date. This past spring she has prepared for our library an exhibit commemorative of the Dawin-Wallace centenary.

## PUBLICATIONS

During the year 1957-1958 *Bulletin* and *Breviora* papers, published under Miss Wright's editorship, totaled 1248 pages — a figure close to the average for recent years. These papers inclued numbers 79 to 88 of *Breviora;* in the *Bulletin,* volumes 115 through 118 were completed. The Mollusk Department published three issues of *Johnsonia* and one of *Occasional Papers on Mollusks.* In addition, the Museum subsidized 11 entomological papers published in *Psyche.*

As may be seen from the appended list of publications, a large proportion of the writings of the staff were, as usual, published through media other than our "house organs." Notable was the publication of Dr. Darlington's book on "Zoogeography: the geographical distribution of animals." This thoughtful and attractively written work has been very highly praised by reviewers; one states (with, I think, ample justification) that it is the most important major contribution to the topic since the work of Alfred Russell Wallace. Likewise of particular note is Curator Greenway's "Extinct and vanishing birds of the world," representing the results of years of research. This, as one reviewer states, "fills a long-felt gap in ornithological literature."

## BUILDING

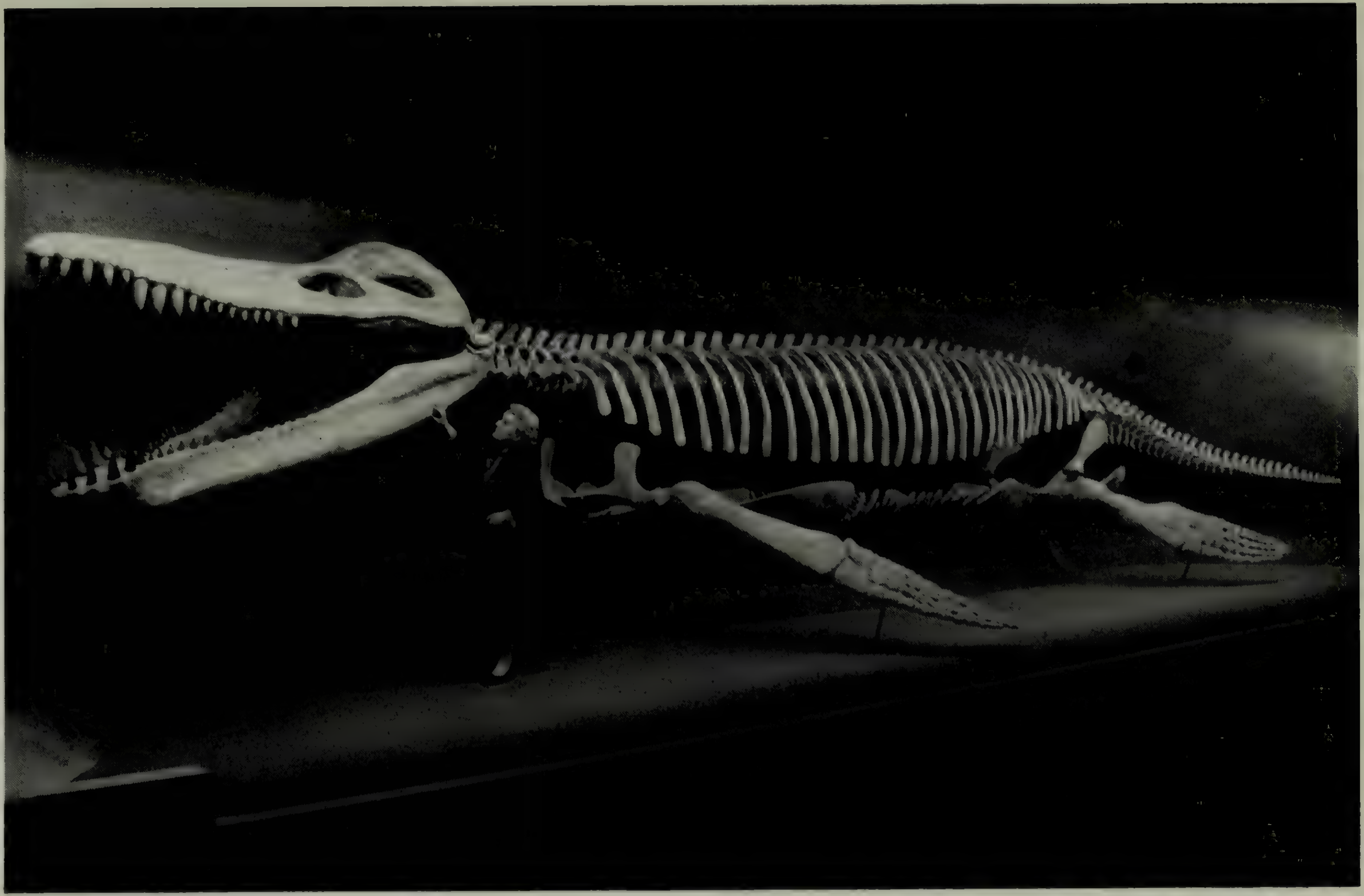
The Museum's home, forming a major part of the University Museum structure, was partially built during the lifetime of Louis Agassiz and completed, in the early '80's, by his son Alexander. It is a homely but substantial brick structure, which, while not by definition fireproof, has stout fire-resistant internal partition walls and an efficient sprinkler system and is regarded by our University building experts as being as safe from major fire danger as a majority of buildings to which the term "fire proof" is technically applied. Although pleasantly old-fashioned, the building can adequately house us for many years to come.

There is, however, one sad note. After serving well for some decades, our broad expanse of copper roof has deteriorated and in great part needs replacement. Some patching has been done from time to time in recent years, but it has become plain that a major operation would be necessary. Accordingly, it has been decided to expend $90,000 of cash reserves the coming year to put the roof in a condition in which it will serve us for a considerable period without further attention.

Increased research activity by the staff, added to a steady increase of staff instruction at various levels, has created a pressing housing problem. An additional teaching laboratory was made available two years ago through a grant from the Higgins Fund, but our graduate students are badly crowded and additional laboratory space is still needed. However, as noted below, we hope in the next few years to move the paleontological exhibits out of the area they now occupy on the first floor and thus free some 6,000 square feet for additional office and laboratory space.

## EXHIBITS

As mentioned in the last two reports, we have begun a revision of our public exhibits — a project which is planned to ex-



The skeleton of *Kronosaurus queenslandicus* as exhibited in the Museum. Length as restored, 42 feet.

tend over a series of years. I have been greatly aided by the constructive planning of a committee consisting of Drs. Lyman, Paynter and Baird. Work so far has been supported by special gifts, and it is hoped that it can be continued in this fashion without the necessity of using funds which would curtail the Museum's normal activities. During the past year a revision, under the direction of Dr. Paynter, of the display of the Thayer Collection of North American birds was completed. This has metamorphosed a depressing and gloomy area of the Museum into an exceedingly attractive exhibit and gives, I hope, a promise of what may be done in the future for other animal exhibits. In the revision of the fossil exhibit, casing for mammals is well advanced. Most notably, the mount of the "sea serpent," the giant fossil marine reptile *Kronosaurus* — some 42 feet long — was completed by Mr. Lewis with the assistance of Messrs. Jensen and Fuller. It was opened to the public following a reception for the Class of 1933 at Commencement. It has received highly favorable comment not only from visitors but also from visiting museum people interested in exhibition techniques.

There had been for many years in the American Museum of Natural History a well-executed series of dioramas illustrative of geologically interesting areas of the United States. The hall in which they had been exhibited is to be turned into a library area and most of these dioramas hence seemed doomed to destruction. Through the kindness of the officials of the American Museum, particularly Dr. Albert E. Parr, Director, eight of them were presented to us. These have been remounted in the geological section of the Museum where they will not only improve a rather drab exhibition area, but will be of value to the teaching program in geology. The work was in part supported from Museum funds, in part by a grant from the Tozier Fund for Visual Education.

## ACKNOWLEDGEMENTS

I wish here to express our indebtedness to many friends in addition to those noted in previous sections.

In the department of mammals gifts of specimens have been received from A. Novick, D. J. Osborn, R. W. Dickerman, Marineland of the Pacific, F. Smithe, A. L. Bryan. Dr. Ralph Wheeler has presented specimens to both the mammal and bird departments, and the latter department also wishes to thank Dr. Spencer Apollonio, John Molholm, Mr. Frank Smithe, and Dr. John H. Kennard for similar gifts. Among some 28 individuals and institutions which gave specimens to the Department of Herpetology may be especially mentioned the University of Puerto Rico, which, through Dr. J. A. Rivero, gave a collection of Venezuelan frogs, Dr. Garth Underwood for a donation of Lesser Antillean and Jamaican lizards, Dr. Carl Gans for Bolivian frogs, Dr. Robert Dressler for Mexican reptiles and amphibians, and T. Savage for Salvadorean reptiles. Dr. von Wahlert, visiting Research Fellow, has aided this department in many ways during the year.

The Department of Insects is much indebted to Dr. E. A. Chapin for help with work in beetles and to Professor W. T. M. Forbes for his work on the Lepidoptera collection. For numerous additions to the spider collections we have to thank Mr. D. Lamore for European spiders, Dr. Otto Degener for Hawaiian and Phoenix Island specimens, Mrs. O. Hite for Arkansas spiders, Drs. W. and L. Miller for collections from California and Oklahoma, Dr. Henry Field for Near East forms, Miss Erna Fruitt for Alaskan material, Dr. J. H. Beaman for spiders from the Rocky Mountain region, and Mr. R. Dreisbach for Mexican spiders.

Gifts to the Department of Marine Invertebartes included echinoderms from the Gulf of Mexico from Dr. Abraham Fleminger, Texan "longhorn" shells from Mr. L. A. Burry, sea urchins from Mrs. J. P. Elliot and Dr. Evelyn Zoppi, Florida brittle stars from Mrs. Frank Olsen and gorgonians from Bimini from Mr. Robert Robertson. To the Department of Mollusks Dr. Addison Gulick has presented a large collection of Achatinellidae made by his father in the Hawaiian Islands. Mr. and Mrs. Harry I. Johnston, Dr. and Mrs. David Schmidt, Mr. Robert Work, Mr. Harvey Bullis and Mr. Gordon Ustick have been most helpful in supplying special material needed for *Johnsonia* studies. The Mollusk department is indebted to graduate students for much volunteer work and, most especially wishes to thank many friends for their contributions to the special fund being raised to further the department's work.

Thanks are due to Professor W. T. Whittard and Mr. David Mitten for gifts of fossil trilobites, to Professor L. J. Wills for a Triassic scorpion, and to Mr. D. Curry for Eocene hystrichosphaenids. Through the good offices of Dr. Henry Field we received an excellent specimen of a Cretaceous dinosaur egg from the Aix-les-Bains Museum.

ALFRED S. ROMER, *Director*

# MUSEUM OF COMPARATIVE ZOOLOGY

## Faculty 1958–1959

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ALFRED SHERWOOD ROMER, PH.D., S.D. (hon.).
GEORGE CHEEVER SHATTUCK, M.D., A.M. (hon.).

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## PUBLICATIONS FOR THE YEAR 1957–1958

### *BREVIORA*

No. 79. *Dasypeltis medici lamuensis,* a new race of egg-eating snake (Ophidia, Reptilia) from coastal East Africa. By Carl Gans. 13 pp. August 9, 1957.

No. 80. A collection of drawings of fishes ascribed to J. P. Kirtland (1793-1877), in the library of Bowdoin College. By James M. Moulton. 4 pp. September 30, 1957.

No. 81. Contributions to a revision of the earthworm family Lumbricidae. I. *Allolobophora limicola.* By G. E. Gates. 14 pp. September 30, 1957.

No 82. The trunk musculature of *Sanzina* and its bearing on certain aspects of the myological evolution of snakes. By Walter Auffenberg. 12 pp. January 31, 1958.

No. 83. *Thamnophis bovallii* Dunn rediscovered (Reptilia, Serpentes). By Benjamin Shreve and Carl Gans. 8 pp. January 29, 1958.

No. 84. Rediscovery of the Australian chelid genus *Pseudemydura* Siebenrock (Chelidae, Testudines). By Ernest E. Williams. 8 pp. January 30, 1958.

No. 85. The choanal papillae of the Cheloniidae. By Thomas S. Parsons. 55 pp. January 31, 1958.

No. 86. A new sicistine rodent from the Miocene of Wyoming. By Craig C. Black. 7 pp. May 29, 1958.

No. 87. An embolomere jaw from the mid-Carboniferous of Nova Scotia. By Alfred Sherwood Romer. 8 pp. June 20, 1958.

No. 88. A new species of the genus *Urotheca* (Serpentes: Colubridae) from Venezuela. By J. A. Roze. 5 pp. June 30, 1958.

## *BULLETIN*

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No. 4. Biological investigations in the Selva Lacandona, Chiapas, Mexico. Raymond A. Paynter, Jr., Editor. 105 pp. 1 pl. April, 1957

No. 5. The genus *Tetragnatha* (Araneae, Argiopidae) in Panama. By Arthur M. Chickering. 53 pp., 108 figs. May, 1957.

No. 6. The *Tenuis* and *Selenophora* groups of the ant genus *Ponera* (Hymenoptera: Formicidae). By Edward O. Wilson. 31 pp. May, 1957.

No. 7. The Chinese *Caeneressa* species (Lepidoptera, Ctenuchidae). By Nicholas S. Obraztsov. 47 pp., 4 pls. June, 1957.

No. 8. A comparative morphological study of the proventriculus of ants (Hymenoptera: Formicidae). By Thomas Eisner. 53 pp., 25 pls. July, 1957.

No. 9. The *Ixodes rasus* group of African ticks with descriptions of four new species (Ixodoidea, Ixodidae). By Don R. Arthur with Colin Burrow. 46 pp. July, 1957.

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No. 1. A study of the sharks of the suborder Squaloidea. By Henry B. Bigelow and William C. Schroeder. 150 pp., 4 pls., 16 figs. August, 1957.

No. 2. Check list of the reptiles and amphibians of East Africa (Uganda; Kenya; Tanganyika; Zanzibar). By Arthur Loveridge. 212 pp. August, 1957.

No. 3. The spider genera *Crustulina* and *Steatoda* in North America, Central America, and the West Indies (Araneae, Theridiidae). By Herbert W. Levi. 58 pp. August, 1957.

No. 4. Contribution to a revision of the earthworm family Ocnerodrilidae. The genus *Nematogenia.* By G. E. Gates. 22 pp. September, 1957.

No. 5. Triassic reptile footprint faunules from Milford, New Jersey. By Donald Baird. 74 pp., 4 pls. November, 1957.

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No. 2. A generic review of the plovers (Charadriinae, Aves). By Walter J. Bock. 74 pp. March, 1958.

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No. 7. The Nearctic members of the genus *Entomobrya* (Collembola). By Kenneth Christiansen. 109 pp., 24 pls. June, 1958.

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No. 37. The family Phasianellidae in the Western Atlantic. By R. Robertson. Pp. 245–283, 13 pls. May 8, 1958.
No. 37. The Museum Boltenianum or the Bolton Catalogue. By R. D. Turner. Pp. 283–284. May 8, 1958.
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## *OCCASIONAL PAPERS ON MOLLUSKS*

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No. 22. Book Review. Voyage aux Iles de Ténériffe, La Trinité, Saint Thomas, Saint Croix et Porto Rico, by Andre-Pierre LeDru. By R. D. Turner. Pp. 179–180. May 29, 1958.

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The synonymy and relationships of the ant *Pseudolasius bayoni Menozzi.* By W. L. Brown, Jr. P. 146.

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No. 1. Further notes on the genus *Eremoleon* Banks, with a new species (Neuroptera: Myrmeleontidae). By P. A. Adams. Pp. 6–8.

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No. 2. Tertiary flies from Colorado and the Baltic Amber. By F. M. Hull. Pp. 37–45.

The organization of a nuptial flight of the ant *Pheidole sitarches* Wheeler. By E. O. Wilson. Pp. 46–50.

No. 3. The Collembola of Lebanon and western Syria. Part II. Families Cyphoderidae and Oncopoduridae. By K. Christiansen. Pp. 77–89.

Spiders of the new genus *Arctachaea* (Araneae, Theridiidae). By H. W. Levi. Pp. 102–106.

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